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Pilot Performance: Round Dial and Vertical Tape Altimeters

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Pilot Performance: Round Dial and Vertical Tape Altimeter

Erin Wesslen

OVERVIEW

Research Question
Literature Review
Methodology
Results
Discussion

Research Question

- 1) Can a pilot hold altitude more accurately with a round dial altimeter or a vertical tape altimeter?

- 2) Does the pilot have a preference between the round dial altimeter and the vertical tape altimeter?

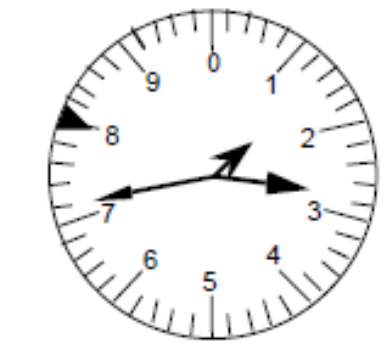
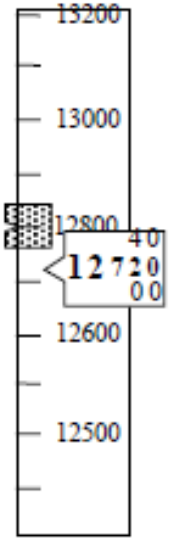
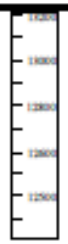
Literature Review

Source: http://stoenworks.com/

Source: http://www.cap-ny153.org/

Source: theflightschool.com

Source: http://www.plasticpilot.net/

Altimeter Tasks	(A) Analog Altimeter	(B) Digital Altimeter	(C)Tape Altimeter	
				
			12,720	
Reading Number	Poor	Poor	Good	Moderate
Perceiving Motion	Moderate	Moderate	Poor	Good
Perceiving Position	Moderate	Poor	Poor	Moderate
Capturing Altitude	Moderate	Moderate	Poor	Good
Maintaining Altitude	Good	Good	Poor	Good

Methodology.

- 3 groups of 8 participants
  - No Flight Experience
  - Round Dial Experience
  - Glass Experience
- Fly at 1600 feet for 1:30, climb to 2600 feet and level off for 2600 feet for 1:30, and descend to 1600 feet for 1:30
- Before flying each trial there is a 1 minute practice session
- Survey to determine preference and accuracy

Results

	No Flight Experience	Round Dial Experience	Vertical Tape Experience
Analog Results (deviation in feet)	14.4	11.8	22.9
Vertical Tape Results (deviation in feet)	27.5	14.3	33.9
Preference	7 Vertical Tape	6 Vertical Tape	6 Vertical Tape
	1 Round Dial	2 Round Dial	2 Round Dial
Performance	5 Vertical Tape	5 Vertical Tape	6 Vertical Tape
	3 Round Dial	3 Round Dial	2 Round Dial

Discussion

- Altitude appears to be held more accurately with a round dial altimeter.
- Comments from participants included:
  - Vertical Tape Altimeter was easier to read, but the consistent changing of the number was distracting.
  - Analog was easier to detect trends, and not distracting.

Future Studies

- Larger Sample Size
- Actual Flight Simulator
- More involved flight sequence
- Different instrument such as the Airspeed Indicator
- Why did the glass experience group do so poorly?

Questions?

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